

## REMARKS/ARGUMENTS

1. In the above referenced Office Action, the Examiner rejected claims 1, 2, 6, 9, 10, and 14 under 35 USC § 103 (a) as being unpatentable over Rybicki (U.S. Patent No. 5,483,182) in view of Lenk (U.S. Patent No. 5,483,287). In addition, the Examiner objected claims 3-5, 7, 8, 11-3, 15, and 16 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. This rejection has been traversed and, as such, the applicant respectfully requests reconsideration of the allowability of claims 1 - 16.

2. Claims 1, 2, 6, 9, 10, and 14 have been rejected under 35 USC § 103 (a) as being unpatentable over Rybicki (U.S. Patent No. 5,483,182) in view of Lenk (U.S. Patent No. 5,483,287). The applicant respectfully disagrees with the Examiner's argument supporting this rejection.

The Rybicki reference and the Lenk reference each teach a current limiting technique that measures the current through a switching transistor and, when it exceeds a threshold, it limits the duty cycle of the signal provided to the switching transistor. Rybicki does the current sensing the voltage across the switching transistor (signal 46) and comparing it to a reference signal produced by a reference transistor 40. Rybicki teaches that the reference transistor is a scaled version of the switching transistor. See column 3 at lines 4-10, 20-32, and 43-51.

Lenk teaches the use of a resistor (RS in figures 2 and 4) or a transformer 26 (figure 3) to sense the current

of the switching transistor SW1 or SW2. See column 5, lines 4-11. In claim 2, Lenk claims modifying the duty cycle when the magnitude of the current exceeds a predetermined threshold.

In contrast, the present claimed invention does not measure the current, but monitors the duty cycle of the DC-DC converter to provide current limiting when needed. As is claimed in claim 1, a method begins by determining a current loading duty cycle of the DC-to-DC converter (i.e., the duty cycle with a load a current, or present, time). The method then proceeds by comparing the current loading duty cycle with a zero loading duty cycle of the output. The zero loading duty cycle is the duty cycle of the DC-DC converter with no load. The method continues by limiting duty cycle of the DC-to-DC converter to the zero loading duty cycle plus the duty cycle loading offset when the current loading duty cycle exceeds the zero loading duty cycle plus a duty cycle loading offset. Thus, the current limiting is derived based on the duty cycle and not a measure of the current as is taught by Rybicki and Lenk.

Claim 6 claims another method of using the duty cycle of a DC-to-DC converter to limit current when needed. This method begins by monitoring duty cycle of the DC-to-DC converter to produce a monitored duty cycle. The method continues by equating the monitored duty cycle to an inductor current based on a relationship between the inductor current and the duty cycle of the DC-to-DC converter to produce an equated current. The method continues by comparing the equated current with a current limit threshold. The method continues by limiting the

inductor current based on the current limit threshold when the equated current compares unfavorably with the current limit threshold. Thus, the current limiting is derived based on the duty cycle and not a measure of the current as is taught by Rybicki and Lenk.

Claims 2, 9, 10, and 14 include similar limitations and/or are dependent upon claim 1 or 6. Accordingly, the applicant believes that the reasons that distinguish claim 1 and claim 6 over the present rejection are applicable in distinguishing the present claims over the same rejection.

For the foregoing reasons, the applicant believes that claims 1 - 16 are in condition for allowance and respectfully request that they be passed to allowance.

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present invention.

RESPECTFULLY SUBMITTED,

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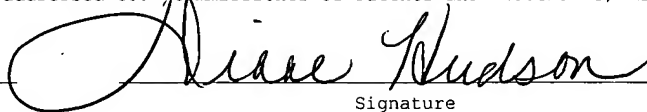
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37 C.F.R 1.8

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